

IN THE CLAIMS

1. (Previously Presented) A method for enabling an introduction of a 200kHz GSM-type network into a TDMA system having a bandwidth that is substantially less than a 2.5MHz bandwidth normally employed for GSM-type networks, comprising:

providing a 52-multiframe containing 12 blocks of four consecutive frames, two idle frames, and two channels used for control channel purposes, said frames comprising a plurality of sequentially numbered timeslots; and

rotating control channels belonging to a serving time group over non-sequential, alternate timeslot numbers within a frame.

2. (Previously Presented) The method as in claim 1, wherein the rotation occurs over odd timeslot numbers in a repeating sequence given as 7, 5, 3, 1, 7, 5,..., and where the rotation occurs between frame numbers $(FN) \bmod 52 = 3$ and 4.

3. (Previously Presented) A method to enable an introduction of a 200kHz GSM-type network into a TDMA system having a bandwidth that is substantially less than a 2.5MHz bandwidth normally employed for GSM-type networks, comprising:

providing a 52-multiframe containing 12 blocks of four consecutive frames, two idle frames, and two channels used for control channel purposes, each of said frames comprising a number of timeslots; and

rotating control channels belonging to a serving time group over every other timeslot number,

wherein a mapping of the control channels on timeslot numbers is defined by the following formula:

For $0 \leq \text{FN mod } 52 \leq 3$, $\text{TN} = ((6 \times ((\text{FN div } 52) \text{ mod } 4)) + 1 + (2 \times \text{TG})) \text{ mod } 8$; and

For $4 \leq \text{FN mod } 52 \leq 51$, $\text{TN} = ((6 \times ((\text{FN div } 52) \text{ mod } 4)) + 7 + (2 \times \text{TG})) \text{ mod } 8$,

where TG is a time group value.

4. (Previously Presented) The method as in claim 1, wherein information specifying at least the rotation direction is signalled to the mobile station in a downlink synchronization channel.

5. (Previously Presented) A wireless TDMA digital communications system, comprising:
at least one mobile station; and

a plurality of base transceiver stations individual ones of which are capable of transmitting packet data to, and receiving packet data from, said mobile station using a 52-multiframe, said frames comprising a plurality of sequentially numbered timeslots, wherein individual ones of said base transceiver stations rotate the transmission of control channels belonging to a serving time group over non-sequential, alternate timeslot numbers within a frame for enabling said mobile station to perform reselection measurements on neighboring base transceiver stations.

6. (Previously Presented) The system as in claim 5, wherein the rotation occurs between frame numbers $(\text{FN}) \text{ mod } 52 = 3$ and 4.

7. (Previously Presented) A wireless TDMA digital communications system, comprising:
at least one mobile station; and

a plurality of base transceiver stations individual ones of which are capable of transmitting packet data to, and receiving packet data from, said mobile station using a 52-

multiframe, said frames comprising a number of timeslots, wherein individual ones of said base transceiver stations rotate the transmission of control channels belonging to a serving time group over every other timeslot number for enabling said mobile station to perform reselection measurements on neighboring base transceiver stations without dropping traffic,

wherein a mapping of the control channels on timeslot numbers is defined by the following formula:

For $0 \leq \text{FN mod } 52 \leq 3$, $\text{TN} = ((6 \times ((\text{FN div } 52) \bmod 4)) + 1 + (2 \times \text{TG})) \bmod 8$; and

For $4 \leq \text{FN mod } 52 \leq 51$, $\text{TN} = ((6 \times ((\text{FN div } 52) \bmod 4)) + 7 + (2 \times \text{TG})) \bmod 8$,

where TG is a time group value.

8. (Previously Presented) The system as in claim 5, wherein information specifying at least the rotation direction is signalled to the mobile station in a downlink synchronization channel.

9. (Previously Presented) The system as in claim 5, wherein the rotation of the control channels occurs in odd timeslot numbers in a repeating sequence given as 7, 5, 3, 1, 7, 5,....

10. (Previously Presented) A network component of a wireless TDMA communications system, comprising circuitry to transmit information to a mobile station using a 52-multiframe, where frames comprise a plurality of sequentially numbered timeslots, said circuitry operating to rotate the transmission of a control channel belonging to a serving time group over odd timeslot numbers in a repeating sequence given as 7, 5, 3, 1, 7, 5,...., where the rotation occurs within a frame between two predetermined frame numbers (FNs).

11. (Previously Presented) The network component of claim 10, where the rotation occurs between $FNs \bmod 52 = 3$ and 4.

12. (Previously Presented) A network component of a wireless TDMA communications system, comprising circuitry to transmit information to a mobile station using a 52-multiframe, where frames comprise a plurality of sequentially numbered timeslots, said circuitry operating to rotate the transmission of a control channel belonging to a serving time group over odd timeslot numbers in a repeating sequence given as 7, 5, 3, 1, 7, 5,..., where the rotation occurs between two predetermined frame numbers (FNs), and where a mapping of the control channels on timeslot numbers (TNs) is defined by:

For $0 \leq FN \bmod 52 \leq 3$, $TN = ((6 \times ((FN \div 52) \bmod 4)) + 1 + (2 \times TG)) \bmod 8$; and

For $4 \leq FN \bmod 52 \leq 51$, $TN = ((6 \times ((FN \div 52) \bmod 4)) + 7 + (2 \times TG)) \bmod 8$,

where TG is a time group value.

13. (Previously Presented) A mobile station for use in a wireless TDMA communications system, comprising circuitry to receive information from a 52-multiframe, where frames comprise a plurality of sequentially numbered timeslots, said receive circuitry operating to synchronize to the rotation of the transmission of a control channel belonging to a serving time group over odd timeslot numbers in a repeating sequence given as 7, 5, 3, 1, 7, 5,..., where the rotation occurs within a frame between two predetermined frame numbers (FNs).

14. (Previously Presented) A mobile station for use in a wireless TDMA communications system, comprising circuitry to receive information from a 52-multiframe, where frames comprise a plurality of sequentially numbered timeslots, said receive circuitry operating to synchronize to the rotation of the transmission of a control channel belonging to a serving time group over odd timeslot numbers in a repeating sequence given as 7, 5, 3, 1, 7, 5,...,

where the rotation occurs between two predetermined frame numbers (FNs), where a mapping of the control channels on timeslot numbers (TNs) is defined by:

For $0 \leq \text{FN mod } 52 \leq 3$, $\text{TN} = ((6 \times ((\text{FN div } 52) \text{ mod } 4)) + 1 + (2 \times \text{TG})) \text{ mod } 8$; and

For $4 \leq \text{FN mod } 52 \leq 51$, $\text{TN} = ((6 \times ((\text{FN div } 52) \text{ mod } 4)) + 7 + (2 \times \text{TG})) \text{ mod } 8$,

where TG is a time group value.

15. (Previously Presented) A method comprising:

providing a plurality of 52-multiframes, each 52-multiframe containing 12 blocks of four consecutive frames, two idle frames, and two channels used for control channel purposes, said frames comprising a plurality of sequentially numbered timeslots, where each frame of a block corresponds to a serving time group; and

rotating transmission of control channels belonging to a serving time group over non-sequential, alternate timeslot numbers within a frame that corresponds to the serving time group, wherein the rotation is performed so that at least one timeslot number used to transmit control channels in a frame corresponding to a given serving time group of a first 52-multiframe is different than at least one timeslot number used to transmit control channels in a frame corresponding to the given serving time group of a second 52-multiframe.

16. (Previously Presented) The method of claim 15, wherein:

the at least one timeslot number used to transmit control channels in the frame corresponding to the given serving time group of the first 52-multiframe comprises first and second timeslot numbers;

the at least one timeslot number used to transmit control channels in the frame corresponding to the given serving time group of the second 52-multiframe comprises second and third timeslot numbers; and

wherein the rotation is performed so that a rotation occurs between the first and second timeslot numbers in the frame corresponding to the given serving group of the first 52-multiframe and between the second and third timeslot numbers in the frame corresponding to the given serving group of the second 52-multiframe.

17. (Previously Presented) The method of claim 15, wherein:

the at least one timeslot number used to transmit control channels in the frame corresponding to the given serving time group of the first 52-multiframe comprises a first timeslot number;

the at least one timeslot number used to transmit control channels in the frame corresponding to the given serving time group of the second 52-multiframe comprises a second timeslot number; and

wherein the rotation is performed so that a rotation from the first and second timeslot numbers occurs between the first and second 52-multiframes.